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ABSTRACT

A study was conducted to determine attitudes of students who had taken Interactive Television Network (ITV) courses at Northcentral Technical College (Wausau, Wisconsin). Following a literature search that revealed that many learners favored ITV, a survey questionnaire was developed and administered to a total of 117 Medical Technology I students who had been enrolled in ITV courses at the college in the fall and spring semesters of the 1989-90 school year. Usable questionnaires were returned by 63 students. Analysis of data showed the following: (1) compared to regular classroom instruction, ITV is the same or somewhat harder regarding studying, assignments, examinations, and asking questions; (2) instructors did an adequate job of transferring information to students, although some were rated highly and others less so; (3) the equipment used was adequate, although many students pointed out problems in hearing the speakers; (4) classroom environment and classroom management techniques were also adequate, although some improvements were suggested; and (5) students were satisfied that they chose ITV over traditional instruction. Recommendations were made to continue the program, to train instructors in use of video techniques, to implement new attendance procedures, and to install new microphones so students could hear the instructors better. (Appendixes include the study questionnaire, cover letter, follow-up letter, suggestions for improvement, additional comments, and a 44-item bibliography.) (KC)

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ED330908

AN APPRAISAL OF THE INTERACTIVE TELEVISION
NETWORK AT NORTHCENTRAL TECHNICAL COLLEGE
FROM THE VIEWPOINT OF ITS STUDENTS

by

Paul Hunsanger

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Submitted in Partial Fulfillment

of the Requirements for the Degree of
Master of Science in Occupational Education

in the School of Education

Ferris State University

Winter 1990

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CHAPTER I

INTRODUCTION

Background for the Study

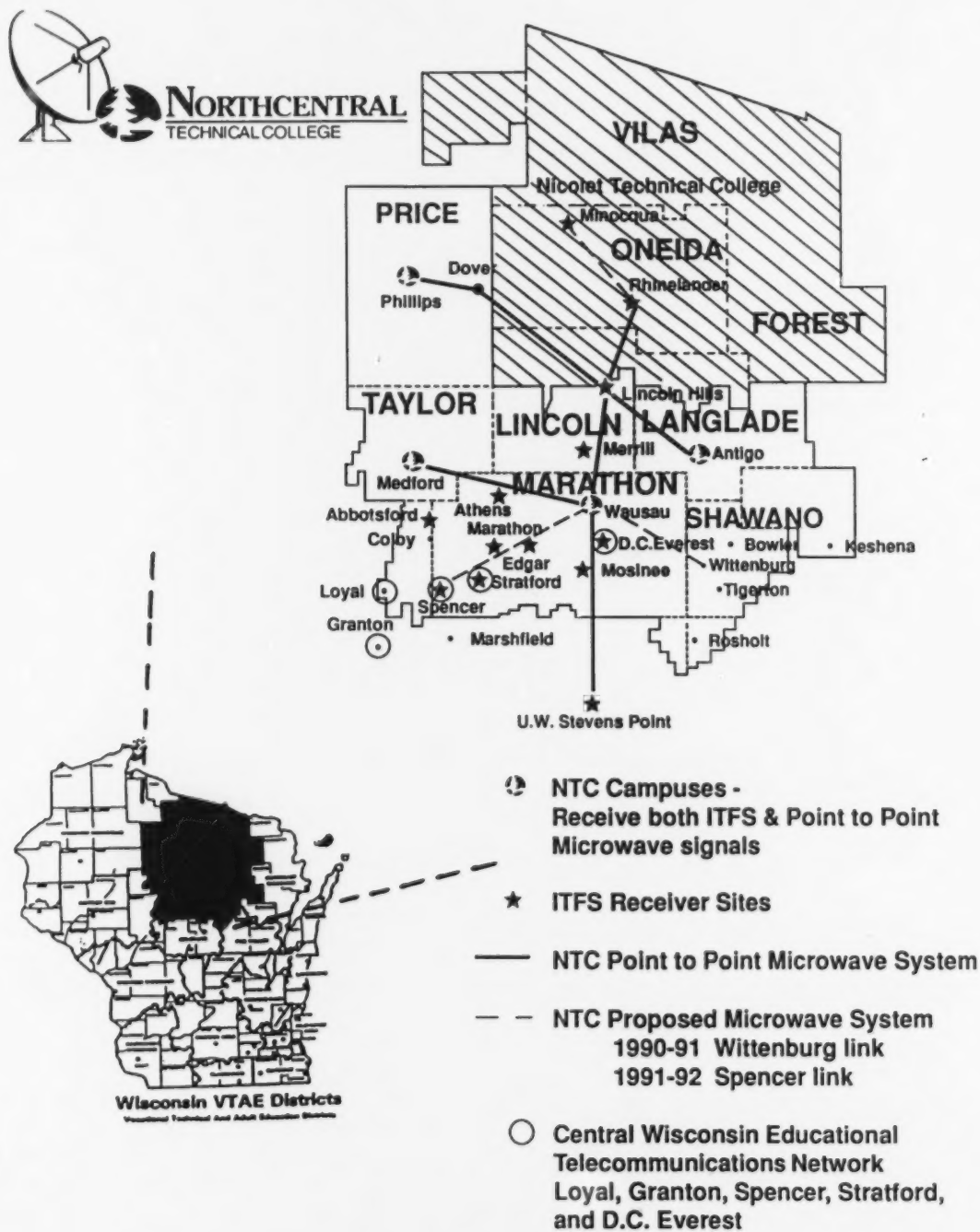
"As administrators in rural and small schools strive to deliver quality education to their students, the obstacles of teacher availability, low student enrollments, and geographical isolation beg for solutions."¹

In June 1987, Northcentral Technical College (NTC) in Wausau, Wisconsin, began delivering instruction via its Interactive Television Network (ITV). Originally, the system allowed only for one-way audio and video. However, the system now uses a two-way microwave link to deliver programming to its north campus in Phillips, Wisconsin, its west campus in Medford, Wisconsin, and its east campus in Antigo, Wisconsin (Figure 1).

In order to understand this type of distance delivery of education some basic concepts need to be described. Here is a brief description of the technology involved in interactive television.

The ITV system at Northcentral Technical College is actually an outgrowth of something called ITFS. "ITFS is an acronym that stands for Instructional Television Fixed Service. This service consists of 20 microwave channels specifically set aside by the Federal Communications Commission (FCC) since 1963 for use by educational institutions. It is intended primarily to be used as a one-

Figure 1. Northcentral Technical College
Telecommunications Coverage Area



way video and two-way audio system (Figure 2). Because ITFS transmitters are usually limited to 10 watts of power, a usable signal can only travel between 20-30 miles."²

This is acceptable, according to the FCC, because the system is intended primarily to serve local educational needs.

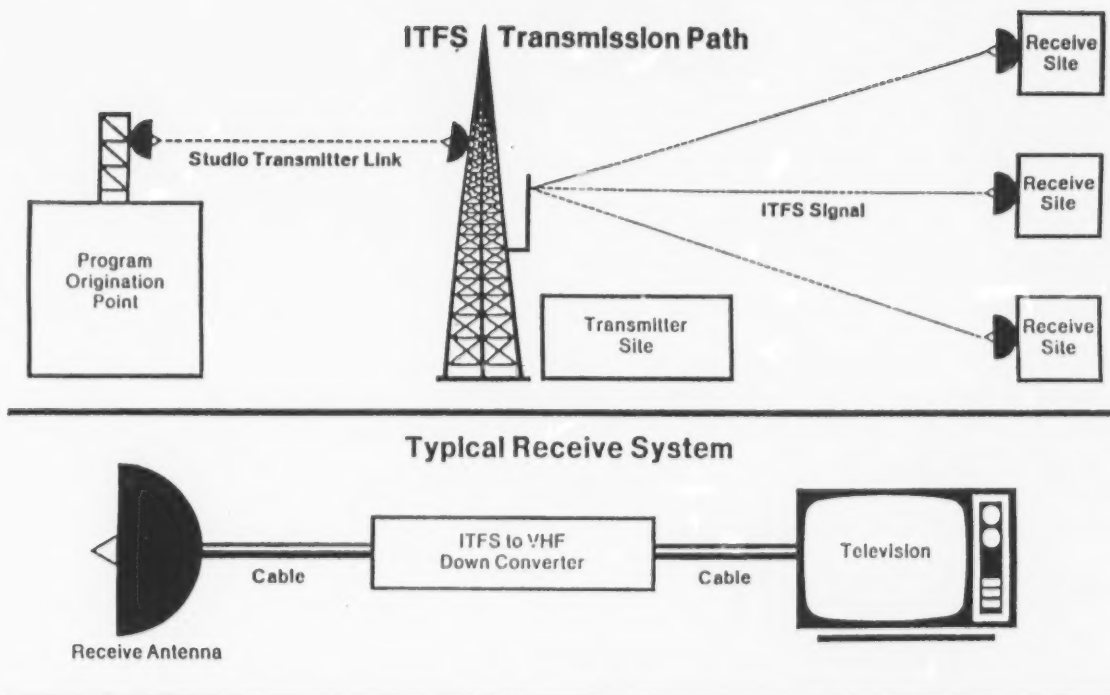
Even though ITFS signals are sometimes sent to homes and businesses, it is possible to have limited control over who has access to these signals because of the special receiving equipment required. It is, therefore, considered a "narrowcast" technology as opposed to a broadcast technology.³

This is a strength of the system allowing it to reach targeted audiences.⁴

Despite the usefulness of this technology it does have some weaknesses. As mentioned earlier, an ITFS is designed primarily for one-way video transmission which limits its interactivity. Also, it is a line-of-sight medium operating in a 20-30 mile radius of the transmitter.⁵ That means the transmitting antenna and receiving dish must be in line-of-sight of each other for the signal to be received. In Wisconsin, this is a problem with its foliage, buttes, and geographic separation of communities.

To help solve the interactivity problem, phone lines can be used for two-way audio hook-ups to allow sender and receiver to communicate live. In the case of NTC, the system has been taken a step further. Microwave links on the ground (terrestrial) have been established to interconnect originating sites (Figure 1.) This microwave-link system is

Figure 2. Generic ITFS System



designed so that each of the classrooms can see and hear the other classrooms simultaneously.⁶

The originating sites in the NTC system allow for full two-way video/audio communication between sites (Figure 3). There are four cameras located in the classroom. Two cameras in the back of the room are trained on the instructor/facilitator. One camera is set up on a wide shot, and the other camera is zoomed in closer on the instructor/facilitator. A third camera is mounted on a stand located on a cart near the instructor/facilitator. This camera is used for graphics or other printed material used for presentation support. The fourth camera is located at the front of the room and is aimed at the class of students.

The instructor has control over which camera is being fed to the other sites through a small switcher that is located on the same cart with the graphics camera. The instructor can see the other sites receiving the programming through monitors located in the back of the room, and the students in the originating site can see the other sites in monitors located in the front of the room. Audio is picked up from the instructor/facilitator by a microphone connected to that person and by push-to-talk microphones located on all the tables for pick up of students.

The receive sites can be of two kinds (Figure 4 & 5). The receive-only site is the simplest. It is set up with one or more television monitors at the front of the room for

Figure 3. NTC Origination Site - Classroom Configuration

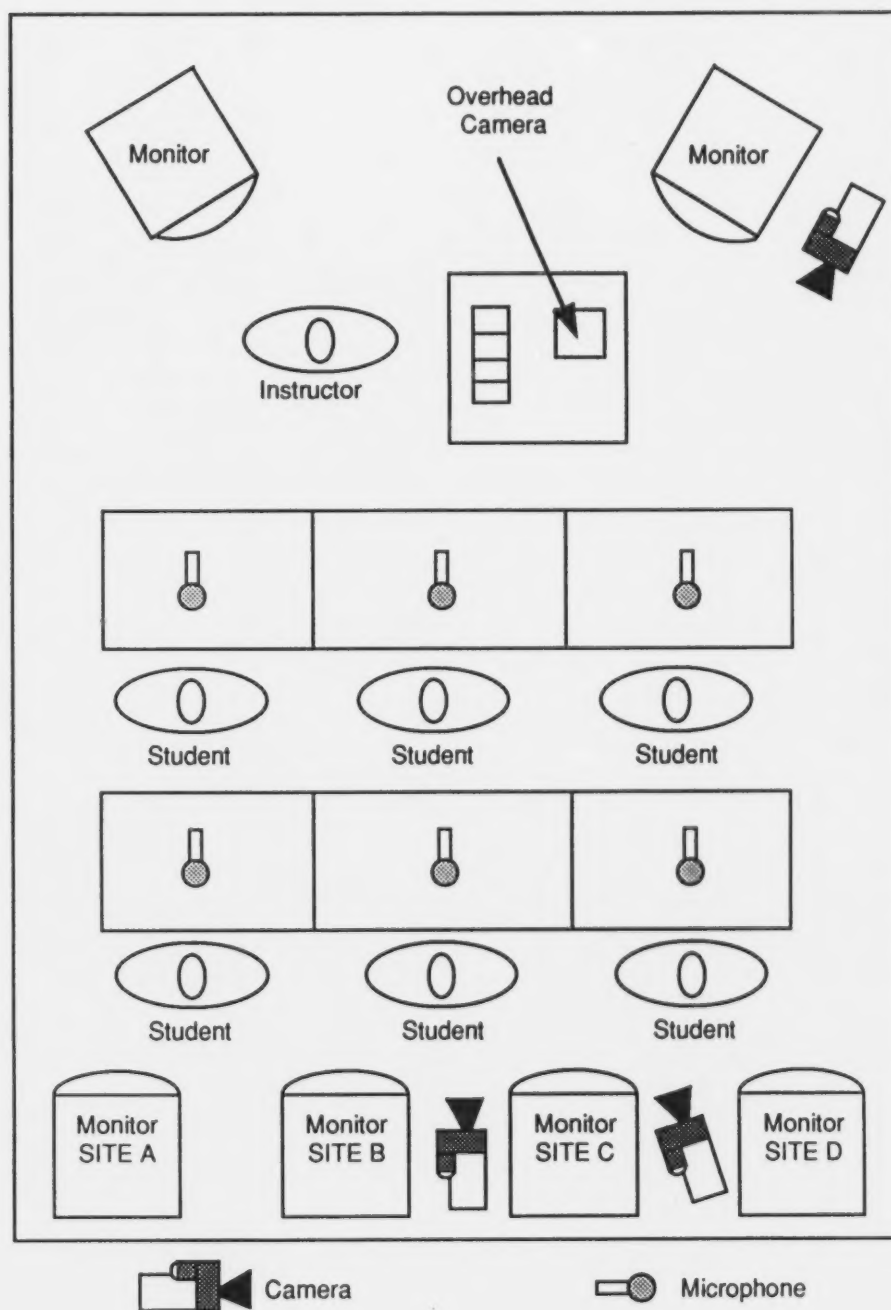


Figure 4. NTC Receive Site - Classroom Configuration - One Way
(Audio response by phone line).

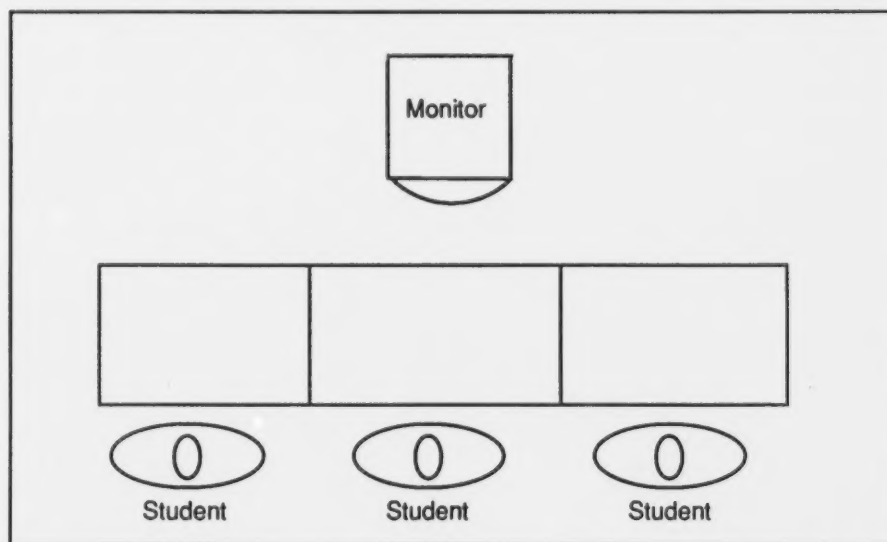
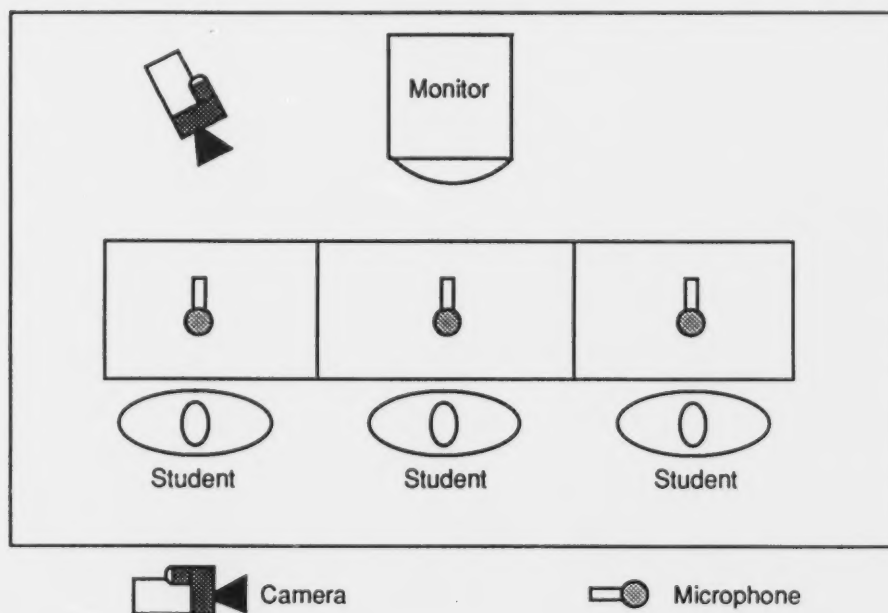


Figure 5. NTC Receive Site - Classroom Configuration - Two Way

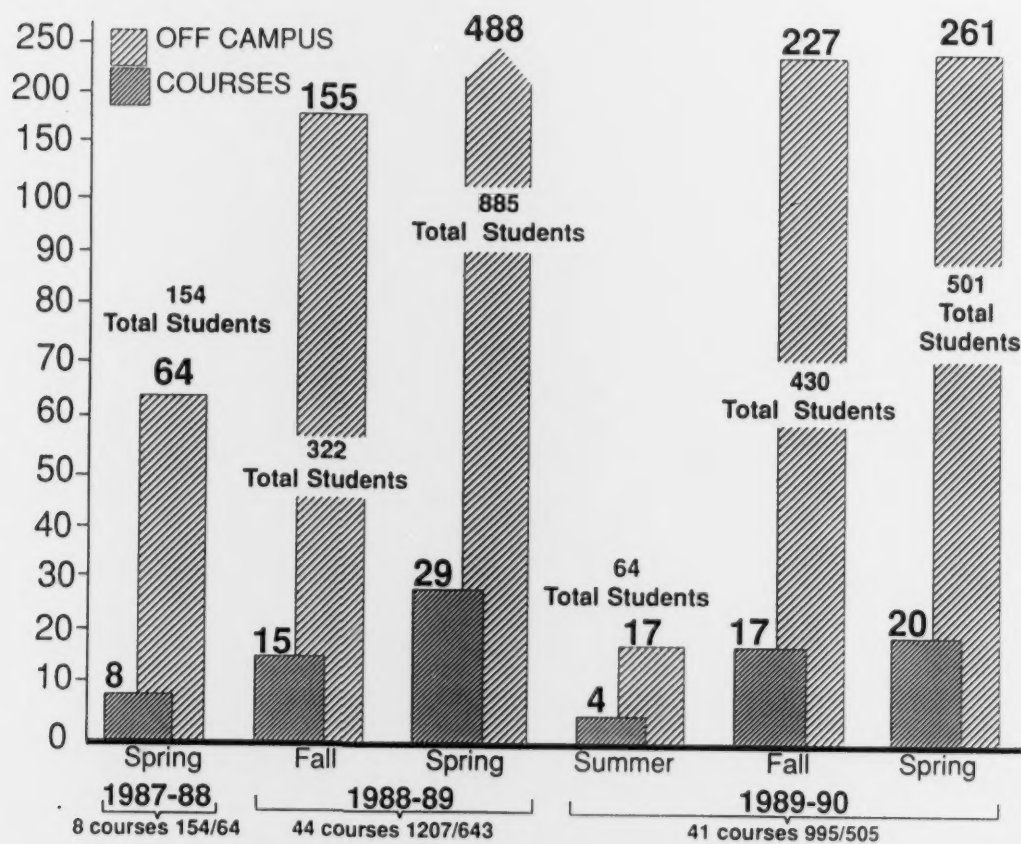


picture and sound reception from the originating site. It has telephone hook-ups for two-way audio. The second type of receive site can also transmit picture and sound back to the originating site. In addition to the television monitor at the front of the room, there is a camera aimed at the class for transmission back to the originating site. This room has push-to-talk microphones for audio pick up which is sent back to the originating site.

In the next three years, NTC will expand its network with a two-way system to connect Wittenberg, Keshena, and Spencer, Wisconsin. The system can still offer programming to receive-only sites located throughout the ten-county district (Figure 1). Besides delivering instruction, the system will be used to downlink and rebroadcast satellite programs, broadcast pre-taped courses, conduct intercampus meetings, and provide data links, an intercampus audio system and facsimile equipment.⁷

Starting in the spring semester of the 1987-88 school year, sixty-four students (41.6%) were enrolled in ITV courses at NTC out of a total course enrollment of 154 students. The enrollment grew the next school year, including both fall and spring semesters, to six hundred and forty-three students (53.3%) out of a total course enrollment of 1207 students. During the 1989-90 school year, four hundred and eighty-eight students (52.4%) were enrolled in ITV courses out of a total of 931 students (Table 1).

Table 1. NTC ITV Enrollment - 1987-1989



This study attempts to determine student perceptions about the system. Specifically, this study asked learners who had taken ITV courses how satisfied they are with the ITV system.

Objectives of the Study

1. To find out the learner's perceptions relative to faculty that taught the ITV courses, the facilities used as classrooms, and the equipment used to listen to and view the televised programming.
2. To gather recommendations from learners to improve the delivery of the programming.
3. To determine the strengths of the distance education delivery system as perceived by the learners.
4. To determine the weaknesses of the distance education delivery system as perceived by the learners.

To achieve the stated objectives, a survey questionnaire was used. This instrument was administered to two classes of Medical Terminology I students at NTC in the fall and spring semesters of the 1989-90 school year.

Significance of the Study

Distance education through interactive television is relatively new. According to Moore (1987) new equipment and new methods are being introduced continuously. There is a need to measure the relevance and effectiveness of this type of distance delivery in order to improve the current state of the art and implement new equipment and methods.⁸

This study is potentially useful to Northcentral Technical College because it provides data from learners who have used the system. It can be used to evaluate the system's effectiveness and to suggest priorities that could improve distance education delivery.

Wausau Insurance Companies, currently exploring the effectiveness of teleconferencing, could potentially use this information in determining the effectiveness of ITV and in designing its own facilities for teleconferencing.

CHAPTER II

REVIEW OF RELATED LITERATURE

Introduction

Interactive television is relatively new. Research dealing with attitudes toward this new technology is limited. Therefore, many of the works cited are related to ITV but are not necessarily surveys of ITV systems like the one at Northcentral Technical College.

The literature related to this study falls into the following two categories:

1. previous studies dealing with learner acceptance of interactive television (ITV).
2. the recommendations of previous studies dealing with the use of ITV.

Learner Acceptance of ITV

In 1987, the Third Annual Conference on Teaching at a Distance was held in Madison, Wisconsin. A number of leaders in the distance education field gathered and shared their views on many aspects of distance education. The report of that meeting is the basis for many of the studies related to ITV systems to be cited here.

At Arizona State University, an ITFS system was designed to assist the university in fulfilling its mission to provide distance learning opportunities throughout metropolitan Phoenix. In a study conducted by Wagner (1987), learners were asked to evaluate the ITFS system (one-way video, two-

way audio).⁹

In a positively worded questionnaire about the system, the mean response was 1.92 in 1985 and 2.19 in 1986 (1=strongly agree). When asked if they would take another ITFS course, 91% responded yes, and 92% either agreed or strongly agreed the major reason for enrolling was that the class was offered at their location.¹⁰ "Results of formal evaluations as well as continuing daily positive interactions with client companies and off campus students are evidence of the system's effectiveness."¹¹

Platten and Barker (1987) surveyed 31 graduate students in education at Texas Tech University in Lubbock, Texas. A private satellite system that provides one-way video and two-way audio communication was used for a two-year pilot project which was conducted to determine if satellite instruction could be used successfully to share educational resources among institutions.¹²

Some significant statistics are important to note. When asked to compare regular classroom studying to televised satellite studying, 69.3% rated the latter as the same or somewhat harder. However, 69.3% of the respondents either agreed or strongly agreed that studying by satellite had been a meaningful learning experience for them.

There were some concerns about certain aspects of this delivery system. For example, limited interaction with the instructor was cited as a disadvantage. Also, there were

problems with the telephone call-in procedure, and the lack of interaction with students at other sites was troublesome.

Participation by teachers in evaluating the class was stimulating for them. They concluded that an instructor teaching via satellite must be highly organized, and lessons must be pre-planned and professionally delivered. A conversational and relaxed tone is best used when teaching over the system, and the pacing was important - not too fast or slow.

Another study revealed the importance of the instructor. Fellenz et al. (1987) interviewed 15 learners at three different distance education sites. The instructor was credited with having the greatest impact on learning.¹³

The feeling of most interviewees was reflected in this statement, "If I can choose between taking a class in a traditional way or on COMNET, my first question is 'Who is the professor?'"¹⁴ Seven other factors were identified as significant: the setting, effective use made of the media, motivation of the learner, interaction among learners, learning style of learners, individual time commitments, and the personal development of learner.¹⁵

The mean satisfaction rating for distance learners was 3.27 compared to a mean satisfaction rating of 3.5 for on-campus students (5 = strongly agree).

Morehouse (1987) concluded in her study of the ITV project at 58 Minnesota school districts that there was no

consistent, statistically significant difference in nearly 1,000 individual grades analyzed from students using the system compared to traditional studying.¹⁶ Student and teacher attitudes were generally positive. However, some inherent disadvantages were identified. For example, teachers indicated a greater frequency of cheating and a lack of personal contact with students. No evident differences in attitudes on the part of ITV students compared to live instruction was discovered.

"In rural Trempealeau County (Wisconsin) and portions of Jackson County, where cows outnumber people two to one, and there is not a traffic light to be found, Western Wisconsin Communications Cooperative (WWCC) operates one of the most innovative cable systems in the country."¹⁷

Lienau (1987) indicated that it was difficult to provide educational opportunities similar to larger and urban educational institutions to the people of this rural part of Wisconsin. With the use of ITFS, the WWCC became the first rural cable system to develop a two-way instructional delivery system for a public school.¹⁸

Each school has a television studio for sending and receiving the ITFS programming. In addition to instructional television the system is used for transmitting computer data for a variety of purposes. Blueprint reading, photography, chemistry concepts, and other classes are some of the classes included in the ITFS curriculum.

A 1987 survey of the students and staff at the nine participating schools has been conducted, however, there has

not been a detailed analysis of the results. The indication from the article is that all of those involved rate it as an effective mode of education.¹⁹

Nadel (1987) surveyed 97 students at the University of Maine. Students were asked to respond to 94 Likert scale items related to their experience with interactive television. Six types of learners were identified.²⁰ The conclusion was ITV has different effects on different types of learners. McClelland (1987) supports this by stating that because media provide a variety of symbol systems, individual learning styles might be supported by different combinations of technologies in educational programs.²¹

Chute (1986) conducted one of the few surveys in a corporate setting.²² AT&T started teletraining in 1981, and by the end of 1984 one hundred thirty-five locations were connected to their interactive system. Students were surveyed and did not perceive a difference in effectiveness between traditional training and teletraining.

Marder (1987) surveyed administrators and users at the University of Wisconsin - Superior.²³ The top 5 variables considered very important by 50% or more of respondents were pace & timing, technical quality of the presentation (poor technical quality will kill a teleconference), ability to adapt curriculum to the video teleconferencing medium, required less than 150 miles travel, and print support literature must be sent ahead of time. The one most

important element for a successful teleconference is the subject matter being appropriate for the teleconferencing medium."²⁴

Marder also discovered that educators cannot take traditional curriculum principles and apply to video teleconferencing. This mode of teaching is different from traditional classroom teaching. Video teleconferencing requires more planning than traditional classroom teaching. Presenters skilled in TV presentations who know how to include the audience in the teleconference are always the most successful.

Recommendations for Use of ITV

What does an adult distance education learner look for when taking a non-traditional course? According to Moore (1987) the distance education learner looks for five things.²⁵ Those things are (1) a body of knowledge or skills to be communicated, (2) guidance in study, (3) something to do with the new knowledge, (4) feedback, and (5) help solving problems with a course from an instructor or consultant with easy access.

ITV must be designed with these factors in mind if it is to be successful. The cornerstone to success, as is the case in any instruction, is the instructor. Norenberg and Lundblad (1987) point out that the instructor not only has to do everything a conventional classroom teacher must do, but also they have to be competent with the delivery system and

pay closer attention to detail.²⁶ However, few teacher education institutions provide in-depth study of the applications of technology in education.²⁷

Instructors will be managing learning rather than disseminating information.²⁸ The instructor becomes more of a facilitator than a teacher. The instructor's role would be to design instruction and activities that would aid the more independent learners. According to Feasley et al. (1985) learning becomes more independent of the instructor.²⁹

Learning would become a cooperative effort between the learner and instructor. This is in contrast to conventional education where the curriculum is seen as transmission of subject matter, teaching as talking, and learning as the acquiring of facts and information.³⁰

Learning materials that accompany distance delivery will need to be well thought out. The materials should build on the strength of the media used. They should allow for flexibility and ease of use. As Norenberg and Lundblad point out they should be pilot-tested and allow for feedback in some form.³¹

Because of the physical separation of the learners from the instructor, misunderstanding by students can lead to problems. Every attempt should be made to avoid misunderstanding by presenting requirements in a detailed manner and constantly asking learners if they understand the requirements.

Another concern pointed out by Norenberg and Lundblad is student motivation. In order to keep students motivated instructors must design course materials that pace student activity with deadlines. Also, teachers must be available for contact by phone to handle any questions or concerns.

There are some success stories associated with ITV. Perhaps the most successful and famous story comes from England. The Open University has been operating since the early 1960's with more than 65,000 students participating in some form of distance delivery.³² It is "open" for several reasons. It is open to everyone regardless of academic qualifications, open to innovation, open year round, and has an open campus that includes the entire country.³³

Because of its openness the student population is very heterogeneous, but there is an age requirement of 21 years to enroll.³⁴ The open university has been very successful in fulfilling an educational void by offering courses and degrees that would not be otherwise available to the students. "It is a pioneer in distance education and serves as a model for institutional organization, distance delivery, and the successful construction of courses and course material."³⁵

Another success story comes from Kirkwood Community College in Cedar Rapids, Iowa. The college serves a seven-county area with a variety of interactive services including four main channels, a cable network, specially

equipped classrooms, a public FM radio station, a satellite downlink and other services.³⁶ The college is apparently meeting the needs of many through its many interactive and cable offerings.

Staff teaching over the system must receive training in technical operation and instructional design before using the system. This allows teachers to be exposed to new technologies and methods and provides enrichment.

Business and industry has also begun to see the advantages of distance delivery. Traveler's Insurance Company uses teleconferencing as a means of providing sales training nationwide for its agents.³⁷ Traveler's reports a 89% success rate in agents passing the securities licensing exam with distance training as compared to 50% success rate with the conventional approach.³⁸

IBM also uses an interactive (two-way audio, one-way video) satellite system as a way to train its sales representatives. A unique aspect of the IBM system is the provision for instant feedback from any or all of the students to the instructor. Each student has a panel of buttons located in front of them to communicate with the instructor. Testing can be accomplished with this system to determine effectiveness of instruction. Currently, 23% of sales training is done on the system with more sites being added. Savings in time and other associated training costs are being realized.³⁹

Summary

Although there have been only a limited number of studies conducted to determine the effectiveness of ITV, most of them have been favorable from the viewpoint of the learners. The advantages of ITV to both the learners and institutions offering the courses will help to prolong its use.

For example, the ability to access large numbers of learners by reaching out to outlying communities is a strong advantage. Not only does the institution gain by increasing its student numbers, but also the learners gain by being exposed to a more diverse group of fellow learners. "Homemakers, the home bound, the incarcerated, people working full time, and those reluctant to attend traditional classes will have access to education."⁴⁰ This gives smaller colleges and universities a chance to compete with larger universities in offering similar courses.

Another advantage is the ability to save time and bridge distances. It seems that time becomes more scarce as the pace of life increases. If a learner can attend a class in his or her own community instead of driving a long distance to a traditional classroom, chances are the learner will choose the former.

Interactive television allows for teacher enrichment. The challenge of preparing a course to be delivered from a distance can provide professional development for teachers.

The problem of low enrollments in certain classes can be alleviated through distance delivery of education. Instead of dropping a class because of lack of interest on one campus, an institution can offer the class by inviting multiple locations to hook up.

There sometimes are not enough "special teachers" available to teach a specialized course, e.g. automotive mechanics. By pooling groups of students together from different locations, a teacher who could not reach all of those students in a traditional classroom configuration can now do this.

The instructor plays a crucial role in the success of ITV instruction. More detailed planning is required for lessons delivered via ITV compared to regular classroom instruction. The instructor must also be skilled in presentation techniques, use of media for ITV, and ways to keep all locations involved in the lesson. Most important according to previous research is choosing the appropriate subject for ITV. In other words, not all subjects are appropriate for ITV.

Some success stories with ITV come from the Open University in England, Kirkwood Community College in Cedar Rapids, Iowa, and corporations like IBM, Travelers Insurance, and AT&T.

CHAPTER III

METHODOLOGY AND PROCEDURES

Introduction

The purpose of this study was to survey learners enrolled in a class that was being delivered from a distance, that is, using television to deliver the teacher's presentation and subject matter, to determine the comfort level of the learners in order to make improvements in the classroom configuration.

Procedures

In order to achieve the objectives of this study (as outlined in Chapter I) students needed to be identified, information based on their perceptions needed to be gathered, and the results analyzed and presented. The procedures were as follows:

1. Identification of students
2. Gathering the data
 - a. Development of the questionnaire
 - b. Revision of the questionnaire
 - c. Administration of the questionnaire
3. Analyzing the data
4. Presenting the data

IDENTIFICATION OF STUDENTS

A listing of students enrolled in Medical Terminology I classes in the 1989-1990 Fall and Spring semesters offered through Northcentral Technical College (NTC) in Wausau,

Wisconsin, was obtained from the Office of Alternative Delivery Systems.

GATHERING THE DATA

The data necessary to achieve the objectives of this study were gathered by means of a survey questionnaire which was sent to all students included in the list obtained from NTC.

Development of the Questionnaire

The questionnaire was patterned after a similar questionnaire used by Texas Tech University (Platten and Barker, 1987).⁴²

Revision of the Questionnaire

The questionnaire was evaluated by Dr. Ed D. Cory, Professor, Ferris State University, program advisor for this research project, Barbara Cummings, Manager, Alternative Delivery Systems, NTC, Larry Gibson, Manager, Audiovisual Communications, Wausau Insurance Companies, and Jim Daniels, Audiovisual Media Director, Wausau Insurance Companies, before administration. Appropriate changes were made after this evaluation, and a final version of the questionnaire was completed.

Administration of the Questionnaire

The questionnaire (Appendix A) and cover letter (Appendix B) were sent to 117 students who had been enrolled in ITV courses in the 1989-1990 Fall and Spring semesters. The students were asked to return the questionnaire within

ten days after receipt. Three weeks after the first mailing, a second mailing with a follow-up letter (Appendix C) and another copy of the questionnaire was sent to each of the students who failed to respond.

As a result of these efforts, seventy students (59.8%) returned the survey. However, only 63 of the 70 surveys were completed because seven of the students who returned the survey had dropped the class.

ANALYZING THE DATA

The accumulated data were analyzed through the strict reporting of data. To achieve this, the questionnaire was constructed in a manner which allowed coding of responses. Any qualitative questions were hand tabulated by the author and are presented in narrative form in Appendix D. The coded responses were entered directly into a microcomputer. This information was then processed to obtain frequency distributions, percentages, and other statistical data.

Respondents were asked to indicate their degree of agreement with various statements comparing interactive television instruction to regular classroom instruction. The degree of agreement was assigned five numerical values ranging from: Much Easier = 5 to Much Harder = 1. Also, respondents were asked to indicate their degree of agreement with a number of statements - Strongly Agree = 5 to Strongly Disagree = 1.

The use of a simple averaging technique produced a

single numerical value for each question. Standard deviations were then calculated for each question.

Estimate of Error

After reviewing completed questionnaires it was discovered that most of the respondents (42, 60.0%) were from the Wausau classroom. That classroom was the origination site which means these respondents were in the same room with the instructor. This could have caused the results to be skewed in the direction of that group. It also allowed some respondents to answer questions they were unqualified to answer. Means of questions 3 through 29 for the whole group (N=63) and the two receive sites (Antigo and Medford, N=21) are presented in separate tables for comparison. Qualitative responses from all locations are included in Appendices D and E.

CHAPTER IV

PRESENTATION AND ANALYSIS OF DATA

Introduction

This study was conducted to determine how students felt about taking a course via interactive television compared to regular classroom instruction.

Most questionnaires were returned with completed answers to nearly every question. However, in some instances, some respondents either unintentionally overlooked a particular question or for some reason chose not to provide an answer. In the reported data, percentages are based only on answers from those respondents who provided complete answers to a given question. A failure to respond, for whatever reason, was computed simply as no response and not included in the analysis and presentation.

Data from Questionnaire

Table 3 lists the semesters and locations of the respondents. Most of the respondents (42, 60.0%) were from the Wausau location.

Table 2. FREQUENCY AND PERCENT OF SEMESTER OF
RESEARCH PARTICIPANTS (N=70)

SEMESTER	N	%
Fall 1989-90	26	37.1
Spring 1989-90	35	50.0
Both	9	12.9
TOTALS	70	100.0

Table 3. FREQUENCY AND PERCENT OF LOCATION OF
RESEARCH PARTICIPANTS (N=70)

LOCATION		
Antigo	9	12.9
Medford	12	17.1
Wausau	42	60.0
<u>Drop Outs</u>	<u>7</u>	<u>10.0</u>
TOTALS	70	100.0

Questions 3 through 6 asked respondents to compare regular classroom instruction, meaning instruction with a teacher in the same classroom with students, to ITV instruction. The responses were recorded on a five-value attitude scale labelled Much Harder, Somewhat Harder, The Same, Somewhat Easier, Much Easier.

A numerical value was assigned to each interval (Much Harder = 1, Somewhat Harder = 2, The Same = 3, Somewhat Easier = 4, Much Easier = 5). The information gathered is shown in Table 4.

Table 4. ATTITUDES OF STUDENTS COMPARING DIFFICULTY OF LEARNING VIA INTERACTIVE TELEVISED INSTRUCTION COMPARED TO REGULAR CLASSROOM INSTRUCTION. REPORTED BY PERCENT. (Questions 3, 4, 5, 6)
All locations reported.

Statement	Much Harder	Somewhat Harder	The Same	Somewhat Easier	Much Easier
Studying via ITV was (N=63)	1.6	20.6	69.8	7.9	0.0
Assignments via ITV were (N=63)	1.6	4.8	84.1	9.5	0.0
Exams via ITV were (N=63)	0.0	4.8	88.9	6.3	0.0
Asking questions via ITV was . . . (N=62)	6.5	46.8	37.1	8.1	1.6

As mentioned in Chapter II, the Wausau respondents were not physically separated from the instructor. In order to compare their results with the total group results, Table 5 presents only the Antigo and Medford responses.

Table 5. ATTITUDES OF STUDENTS COMPARING DIFFICULTY OF LEARNING VIA INTERACTIVE TELEVISED INSTRUCTION COMPARED TO REGULAR CLASSROOM INSTRUCTION. REPORTED BY PERCENT. (Questions 3, 4, 5, 6)
Antigo and Medford locations reported.

Statement	Much Harder	Somewhat Harder	The Same	Somewhat Easier	Much Easier
Studying via ITV was (N=63)	0.0	38.1	42.9	19.0	0.0
Assignments via ITV were (N=63)	0.0	9.5	76.2	14.3	0.0
Exams via ITV were (N=63)	0.0	4.8	85.7	9.5	0.0
Asking questions via ITV was . . . (N=62)	4.8	47.6	23.8	19.0	4.8

Table 5 indicates some differences between the total

group and just the Antigo and Medford locations. The Antigo and Medford groups responded without extremes (much harder, much easier) compared to the entire group in questions 1 through 3. The Antigo and Medford groups tended more toward the central response seeming to indicate no significant difference between ITV and regular classroom instruction. Both tables indicate a problem related to asking questions (Question 4).

As can be seen in Table 6, 3 out of the 4 questions received a higher average response from the true distant locations (Antigo, Medford) compared to the average response of all locations indicating either no significant difference between ITV and regular classroom instruction.

Table 6. MEANS AND STANDARD DEVIATIONS FOR ENTIRE GROUP COMPARED TO ANTIGO AND MEDFORD GROUP.

<u>Question</u>	<u>All Locations</u>		<u>Antigo & Medford</u>	
	<u>Mean</u>	<u>Standard Dev.</u>	<u>Mean</u>	<u>Standard Dev.</u>
3	2.84	.57	2.81	.73
4	3.02	.45	3.05	.49
5	3.02	.33	3.05	.37
6	2.52	.80	2.71	.98

The following tables present specific data from Question 7 through Question 29. All locations' responses are included in the tables.

Questions 7 through 29 used a different scale to

measure the attitudes of respondents. They were asked to indicate their degree of agreement with various statements regarding instructors, environmental factors, equipment, lesson planning, and overall satisfaction. The responses were recorded on a scale labelled Strongly Disagree (numerical value = 1) at one extreme to Strongly Agree (numerical value = 5) at the other extreme.

Table 7. INSTRUCTOR FACTORS. ALL LOCATIONS. IN PERCENT.
(Questions 9, 10, 21)

	Strongly Disagree		3	Strongly Agree	
	1	2		4	5
9. Instructor outlined objectives for course (N=63)	1.6	6.4	41.3	15.9	34.9
10. Instructor knew material (N=63)	3.2	6.4	22.2	28.6	39.7
21. Instructor made students feel important (N=58)	10.3	13.8	32.7	24.1	19.0

Question 21 received only 58 responses for some unknown reason. Some respondents may not have understood the question.

Table 8. ENVIRONMENTAL FACTORS. ALL LOCATIONS. IN PERCENT.
(Questions 8, 11, 12, 22, 23, 24)

	Strongly Disagree			Strongly Agree	
	1	2	3	4	5
8. Other learners attentive (N=63)	7.9	1.6	41.3	14.3	19.1
11. Easier to let mind wander than regular instruction (N=62)	25.8	19.4	30.7	12.9	11.3
12. Environment adequate (N=61)	9.8	14.8	26.2	22.9	26.2
22. Eyes got tired (N=56)	28.6	32.1	33.9	5.4	0.0
23. Sufficient breaks given (N=58)	10.3	8.6	27.6	19.0	34.5
24. Opportunity to discuss with other sites given (N=62)	6.5	19.4	27.4	25.8	20.9

Questions 22 and 23 only received 56 and 58 responses, respectively, compared to the total of 63 respondents. Perhaps the questions were not clear.

Table 9. EQUIPMENT FACTORS. ALL LOCATIONS. IN PERCENT.
(Questions 13, 14, 15, 16, 19, 25, 26, 27)

	Strongly Disagree			Strongly Agree	
	1	2	3	4	5
13. Classroom & equipment set up before class (N=61)	6.6	22.9	24.6	21.3	24.6
14. TV in good condition (N=61)	1.6	16.4	34.4	29.5	18.0
15. TV picture clear & easy to see (N=61)	3.3	13.1	27.9	34.4	21.3

Table 9. Continued. EQUIPMENT FACTORS.
(Questions 16, 19, 25, 26, 27)

	Strongly Disagree		3	Strongly Agree	
	1	2		4	5
16. Sound clear & easy to understand (N=60)	3.3	3.3	45.0	25.0	23.3
19. Other sites audible (N=61)	14.8	26.3	31.1	18.0	9.8
25. Microphone slow & inefficient (N=63)	22.2	23.8	38.1	7.9	7.9
26. Intimidated by microphone (N=63)	17.5	22.2	38.1	11.1	11.1
27. Very little talkback noise on audio (N=61)	3.3	16.4	39.3	19.7	21.3

Table 10. LESSON MATERIALS. ALL LOCATIONS. IN PERCENT.
(Questions 7, 17, 18, 20)

	Strongly Disagree		3	Strongly Agree	
	1	2		4	5
7. Lessons more organized than regular instruction (N=63)	9.5	33.3	36.5	12.6	7.9
17. Text supported TV lesson (N=60)	1.7	6.7	36.7	25.0	30.0
18. Visual aids legible & easy to see (N=61)	4.9	22.9	29.5	19.7	22.9
20. Grading prompt (N=47)	12.8	8.5	38.3	21.3	19.2

Question 20 received only 47 responses, the lowest amount of all questions. Perhaps the questions was worded poorly since the term "learning modules" was used and

misunderstood by the respondents.

Table 11. OVERALL SATISFACTION. ALL LOCATIONS. IN PERCENT.
(Questions 28, 29)

	Strongly Disagree			Strongly Agree	
	1	2	3	4	5
28. Studying by ITV meaningful to me (N=62)	4.8	4.8	48.4	21.0	21.0
29. Satisfied with decision to take ITV course (N=63)	4.8	6.4	31.7	22.2	34.9

Taking this a step further, Table 12 compares means and standard deviations of Questions 7 through 29 from all locations to just the Antigo/Medford locations.

Table 12. MEANS AND STANDARD DEVIATIONS FOR ENTIRE GROUP
COMPARED TO ANTIGO AND MEDFORD GROUP.

Question	All Locations		Antigo & Medford	
	Mean	Standard Dev.	Mean	Standard Dev.
7	2.76	1.05	2.81	1.14
8	3.19	1.17	4.00	1.20
9	3.76	1.05	4.33	.99
10	3.95	1.08	4.29	.93
11	2.65	1.30	2.43	1.43
12	3.41	1.29	4.10	1.02
13	3.34	1.25	3.57	1.26
14	3.46	1.02	3.52	1.18
15	3.57	1.06	3.76	.97
16	3.62	.98	3.62	1.13

Table 12. Continued. MEANS AND STANDARD DEVIATIONS FOR
ENTIRE GROUP COMPARED TO ANTIGO AND MEDFORD GROUP.

Question	All Locations		Antigo & Medford	
	Mean	Standard Dev.	Mean	Standard Dev.
17	3.75	1.01	4.05	1.05
18	3.33	1.20	3.43	1.29
19	2.82	1.18	2.95	1.29
20	3.26	1.23	3.15	1.35
21	3.28	1.21	3.43	1.43
22	2.16	.90	1.71	.82
23	3.59	1.31	4.00	1.18
24	3.35	1.19	3.24	1.19
25	2.56	1.15	2.43	1.00
26	2.76	1.19	2.33	.94
27	3.39	1.09	3.43	1.18
28	3.48	1.03	3.90	1.02
29	3.76	1.14	4.33	.89

In 21 out of the 27 questions compared, the Antigo/Medford group recorded either an equal or higher average response than the entire group. Questions 11, 22, 25, and 26 were worded negatively compared to the other questions and consequently, did not receive higher averages from the Antigo/Medford group. The other 2 questions that did not receive higher average responses from Antigo/Medford, numbers 16 and 24, indicate two concerns. Those concerns are sound quality and opportunity for discussion. Both of those

concerns also garnered negative qualitative responses (Appendices D and E).

Question 30 does not appear in Table 12 because it required a yes or no response. However, the comparison between the entire group and Antigo/Medford is noteworthy. Out of the 21 responses from Antigo/Medford, 20 respondents indicated that they would take another ITV course compared to 32 out of 38 Wausau respondents.

Questions 31 and 32 were designed to have respondents elaborate on their feelings about the ITV course they had taken. Question 31 asked for suggestions for improvement, and these comments appear in Appendix D. Question 32 asked respondents to make any additional comments about their experiences with the class in which they were enrolled. Those comments appear in Appendix E.

Finally, respondents were asked if they wanted a summary of the results of the study. If they checked yes and added their names and addresses a summary of the study was sent to them.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Introduction

ITV distance education is characterized by the use of technology to link teachers and learners who are physically apart from one another. This type of technology dictates the type of instruction and curriculum content which can be utilized. This study focused on interactive television that provides both audio and visual on-line communication between and among all sites. The transmission is provided through a cable system or microwave dish.

The purpose of this study was to answer the question of how learners felt about using the ITV system at Northcentral Technical College (NTC).

Review of the Procedures

The major limitation of this study is one which is common to many survey studies. That limitation is the unreliability of generalizing from such a limited sample (63 respondents). No investigator can be certain if the group under consideration is representative of the population at large. Yet, being able to draw indicative conclusions is the goal of most surveys. Therefore, the conclusions have been approached with caution.

A second limitation of this study was the number of respondents from one location (Wausau, 60.0%) not really receiving the instruction from a distance. They were not in

distance classrooms physically separated from the teacher.

The quantitative data were skewed by these respondents because some questions specifically asked respondents to compare ITV instruction with traditional classroom instruction. These Wausau respondents could not make a knowledgeable comparison between the two types of instruction unless they had taken a class via ITV in the past. The data they did provide was not completely useless because they were exposed to the technology and methods of ITV. The data is presented in two formats - all locations together and Antigo and Medford together without Wausau.

Additionally, Wausau qualitative data are included, separate from the other two locations, in Appendices D and E because of the valuable feedback that can be used by Northcentral Technical College to enhance its distance delivery system.

A third limitation relates to the questionnaire. In questions 7 through 29, the item in the middle of the scale (3) should have had a descriptor to define its value (Neutral). Although there is no statistical evidence of this, some respondents may have interpreted its value incorrectly.

Conclusions

ITV at the Northcentral Technical College campuses is a viable alternative to traditional classroom instruction. This study confirms the following:

1. Compared to regular classroom instruction, ITV at Northcentral Technical College is the same or somewhat harder regarding studying, assignments, examinations, and asking questions.

2. The instructors did an adequate job of transferring information to students. Some received very high marks while others did not fare so well. One comment sums up the importance of the role of the instructor, "I really think it all depends on the instructor. If the instructor is comfortable in front of a camera and with a microphone the class will fare well."

3. The equipment used in the ITV system was adequate. The quantitative data were favorable for equipment, however, some additional comments pointed out shortcomings of the microphones and speakers used at all locations (see Appendices D & E).

4. The classroom environment was adequate. Like the quantitative data for equipment, this factor received favorable marks. However, additional comments in the qualitative data indicated some temperature problems and overcrowding.

5. The classroom management techniques used were adequate, however, some improvements in taking attendance and having equipment set-up prior to the class meetings need to be considered.

6. Studying via ITV was a meaningful experience for the

respondents, and they were satisfied with choosing ITV as an alternative to traditional instruction.

Program Recommendations

1. The first and most important recommendation is to continue using ITV for distance education given the lack of significant differences in learner responses to the survey items.

2. Train instructors in the use of video for interactive television instruction. The college has already trained the instructors on the basics of the system. However, some formal training in the design of lessons for ITV, appropriate use of visuals, techniques for including all locations in discussions, and other methods for enhancing the ITV experience would be beneficial.

3. The college should consider implementing a new attendance procedure for its ITV class meetings. Although no quantitative data was gathered to support this, many of the qualitative responses referred to a problem in taking attendance quickly. It appears that there was plenty of lost time during this process. An alternative would be a sign up sheet at each location that would be administered by an on-site facilitator.

4. The college should consider installing better microphones so students will use them without intimidation. According to some respondents, the microphones required a loud response in order for other locations to hear the

question. More sensitive microphones might help. In addition to installing new microphones, improved sound/speaker systems should be installed. There was a problem hearing at all locations.

Recommendations for Further Study

Future studies should focus on other types of classes being taught via ITV. For example, classes other than lecture-only should be studied in order to determine the effectiveness of ITV in teaching psychomotor skills.

Another group to be surveyed would be the instructors teaching via the ITV system. Instructors would have valuable information regarding their feelings about the effectiveness of this delivery system and the use and configuration of different equipment.

APPENDIX A
Questionnaire

1. Where was your classroom located to receive lessons via Interactive Television (ITV)? ☐ Antigo ☐ Medford ☐ Wausau
2. In which semester were you enrolled to take the ITV course?
☐ Fall 1989 ☐ Winter 1989-90

Please circle the number that indicates your feeling about the following statements.

- | | Much Harder | Somewhat Harder | The Same | Somewhat Easier | Much Easier |
|---|-------------------|-----------------|----------|-----------------|----------------|
| 3. Compared to regular classroom instruction *, studying via Interactive Television (ITV) was: | 1 | 2 | 3 | 4 | 5 |
| 4. Compared to regular classroom instruction, assignments given via ITV were: | 1 | 2 | 3 | 4 | 5 |
| 5. Compared to regular classroom instruction, exams given via ITV were: | 1 | 2 | 3 | 4 | 5 |
| 6. Compared to regular classroom instruction, asking questions via ITV was: | 1 | 2 | 3 | 4 | 5 |
| | Strongly Disagree | | | | Strongly Agree |
| 7. Lessons over ITV seemed more organized than regular classroom instruction. | 1 | 2 | 3 | 4 | 5 |
| 8. The other learners in class were attentive during the ITV lesson. | 1 | 2 | 3 | 4 | 5 |
| 9. The instructor outlined the objectives in this ITV course. | 1 | 2 | 3 | 4 | 5 |
| 10. The instructor knew the material well enough to present it on TV in an effective way. | 1 | 2 | 3 | 4 | 5 |
| 11. I found it easier to let my "mind wander" and not pay attention in this ITV course than in a regular class. | 1 | 2 | 3 | 4 | 5 |

Regular classroom instruction means learning environment where live teacher is present in same room with students.

	Strongly Disagree			Strongly Agree	
12. The classroom environment, i.e. temperature, noise level, light level, room size, was adequate for the TV lesson.	1	2	3	4	5
13. The TV equipment and classroom were prepared and ready for the lesson when I arrived.	1	2	3	4	5
14. The TV receiver in the classroom was in good operating condition.	1	2	3	4	5
15. The TV picture was usually clear and easy to see.	1	2	3	4	5
16. The sound quality of the teacher's voice on TV was usually clear and easy to understand.	1	2	3	4	5
17. The text and/or reading material supported the TV lessons.	1	2	3	4	5
18. Visual aids (charts, written notes, pictures, etc.) used by the TV teacher were usually legible and easy to see.	1	2	3	4	5
19. When students at other sites spoke, I could easily hear and understand their voices.	1	2	3	4	5
20. Learning modules for the course have been promptly graded and returned to me via the mail.	1	2	3	4	5
21. The TV teacher made me feel needed and important in this class.	1	2	3	4	5
22. My eyes got very tired watching TV during the broadcast.	1	2	3	4	5

	Strongly Disagree			Strongly Agree	
23. Sufficient breaks (opportunity to go to the rest room, get a drink, etc.) were allowed during each broadcast.	1	2	3	4	5
24. Opportunity for discussion of class topics with students at other sites was provided.	1	2	3	4	5
25. During the lesson broadcasts, there were many times I wanted to use the microphone to ask questions but did not because the procedure was too slow and inefficient.	1	2	3	4	5
26. I was embarrassed to use, or felt intimidated by, the microphone to ask questions.	1	2	3	4	5
27. When speaking on the microphone to the teacher, there was very little "talkback" noise or interference.	1	2	3	4	5
28. Studying by ITV has been a meaningful experience for me.	1	2	3	4	5
29. I am satisfied with my decision to be a student in an ITV course.	1	2	3	4	5

30. Would you take another ITFS course if you had the chance?

☐ Yes ☐ No

31. What suggestions for improvement do you have?

32. Please make any additional comments below about your experiences with the class in which you were enrolled.

33. Would you like a summary of the results of this study?

☐ Yes ☐ No

Name: _____

Address: _____

Thank you !

APPENDIX B
Cover Letter

April 3, 1990

Dear :

I am working on a research project on the Interactive Television System (ITFS) at Northcentral Technical College in Wausau. You recently completed a course delivered by this service, and I am interested in your opinions about it.

The enclosed questionnaire is designed to help concerned faculty and staff at Northcentral Technical College improve the delivery of courses through the ITFS. Your completion of the enclosed questionnaire is especially important since the population size is so small. In order for the results to accurately represent the users of this service, it is important that each questionnaire be completed and returned. A postage paid envelope is included with the questionnaire for your reply.

You may be assured of complete confidentiality. No individual will be identified with a specific statement and only grouped data will be reported.

The results of this survey will be made available to concerned faculty and administrators at Northcentral Technical College. You may receive a summary of the results by checking the appropriate box on the questionnaire.

I would be happy to answer any questions you might have. Please write or call me at (715) 847-7772 or (715) 842-7746. Thank you for your cooperation.

Sincerely,

Paul Hunsanger

Enclosure

APPENDIX C
Follow-up Letter

April 23, 1990

A few weeks ago I sent you a questionnaire asking for information about the Interactive Television course you took through Northcentral Technical College. If you have already sent the questionnaire back, please ignore this letter. However, if you have not returned the questionnaire please take the time to do so now. This information will be used to help the college understand how the ITV system is working.

I have enclosed a duplicate copy of the questionnaire. Your completion of this questionnaire is essential for us to reach meaningful conclusions from the results. A response rate of 100% will certainly aid in this survey. A postage-paid envelope is included with the questionnaire for your reply.

The results of this survey will be made available to concerned administration and faculty at the college. You may receive a summary of results by checking the appropriate box.

I would be happy to answer any questions you might have. Please write or call me at (715) 847-7772 or 842-7746. Thank you for your cooperation.

Best Regards,

Paul Hunsanger
1804 Macaw
Wausau, WI 54401

APPENDIX D
Suggestions for Improvement
(Question 31)

ANTIGO

"The teacher didn't really give us a chance to ask questions. By the time there was a pause it was too (sic) late to get the question in, (sic) a new subject would be started. Sometimes we would say excuse me 3 or 4 times before she heard us. No chance of being seen if you raised your hand."

"None. I had American Institutions with _____ and Medical Terminology with _____. They were both excellent teachers and I enjoyed their classes and lessons thoroughly. I thought that the assignments were clearly explained. Also, even though we weren't in the classroom we were always included in class discussion."

"Hearing other classes was a major problem - we couldn't hear Wausau or Medford a lot of times."

"Our tests were never sent back to us after they were graded. We were never able to see which questions we had gotten wrong. There was also a time or two when our class material did not reach us until the week after."

"Better communication between ITV sites - i.e. our Antigo group couldn't hear the Medford group very well - 50% of time."

MEDFORD

"Better sound system. More classes available."

"Test the microphone earlier before the class because they had to work on them during class."

"Make sure the equipment is working properly before class - some time was wasted trying to 'time' everything at beginning of class."

"Please offer more ITV Classes! An in-classroom teacher isn't necessary, we have a facilitator, we do tests and hand in assignments. More classes can be offered this way! Why aren't they?"

"More effective screening of instructors -- some simply are not adept in teaching via ITV, and cannot make the transition. My instructor was knowledgeable, and attempted to include all of us; however, I don't feel she was prepared and much time was wasted. The satellite "connections" should be checked more often to make sure receipt of signals is clear and uninterrupted."

"Have equipment ready & checked out before class - when there is a lot of feedback ITV class should be cancelled! It is too annoying trying to ask questions or trying to hear above a squeal."

"The instructors should make an effort to visit each site once and originate class from there, even though the other sites may not be able to see them."

"The only thing I didn't like about this was the teacher."

"More ITV classes!!"

"The sound could be a bit better."

WAUSAU

"The room was very crowded - no space to feel comfortable."

"For the people in Medford to talk louder."(sic)

"The teacher made the difference. The mikes aren't used enough."

"Many times the instructors placed a visual aid on the screen and talk (sic) much to (sic) long with the visual aid still on screen. Difficult to see all the students at remote sites. Most of the time, the students in the room with the instructor did not use their microphones."

"The class was OK - I don't feel this questionnaire is appropriate to students at Wausau except for questions regarding equipment since we had the live teacher & did not have the inconvenience of having faxed and mailed tests etc."

"Attendance should be taken before class starts because it wastes too much time."

"Better microphones. Sometimes it was difficult to hear & to see the other sites."

"All & all I was very satisfied with the ITV part of the course. If any difficulties, they were very minor & it seemed to be corrected immediately, but I was on the instructor side of the course. I might of felt very different if I was on the other side in Medford that is!"

"This is the first ITV class I ever had but would be very interested in another. I would have to take another ITV class in order to find out if there would be any improvements. I really think it all depends on the instructor. If the instructor is comfortable in front of a camera & with a microphone the class will fare well."

"Bigger TV screens - more integrated with each other & easier to see. Very seldom could students (or teacher) hear students from other sites."

"Make the room conditions more bearable. It was really hot most of the time. It took a long time to get the outside sites in and when we finally did half the class period was over. It took a lot of time to get everyone clear before we could start class."

"Use maybe a bigger screen TV. It was hard to see the other class! The room also was too hot & the equipment never seemed to be working correctly!"

"Room temp.(sic) was extremely uncomfortable (very hot) and during each session, clanks, knocks, etc. were loud & distracting when heat system kicked in or shut off."

"Try to get the equipment to work a little better. There were times we had to wait for the other sites to come on-line. There were also times the other sites would go off-line and we had to wait again or repeat what was said. I didn't like talking into the microphone, it was an inconvenience to always remember to use it."

"The equipment could be more reliable."

"The sites, especially the outlying sites, should listen to the teacher's lecture instead of doing assignments or homework. Nobody cared to use the microphones because they had to speak up & into the microphones. They also take a lot of space on the table. The teacher also has more responsibilities in the ITV classroom situation. It is a class experience to adjust to."

"Have equipment ready. Have an instructor that knows what he/she is doing. Have instructor stick to the task at hand instead of gossip, family matters, past patients etc.
---"

"Larger TV screens - its difficult to go over test results."

APPENDIX E
Additional Comments
(Question 32)

ANTIGO

"I am enrolled in Medical Terminology I. I felt this course was self-learned. I did not need a teacher to help learn. I definitely would not have felt it worth while to travel to Wausau for this course, since I would soon discover, the teacher is not necessary."

"It seemed to me that because our teacher couldn't see us at the Antigo campus, but could at the Medford campus, it was much easier for her to forget about us."

"I found this new technology very interesting-the possibilities are endless!"

"I did find our teacher, _____, to be fun and easy to listen to. I feel she did a good job and would definitely take another ITFS class if I needed to."

"I really like our teacher _____ - she was interesting, informative and at the same time made the class enjoyable."

"The TV and microphones were always ready to go when I arrived to class. Also, my teachers always made assignments clear and at the end of class they would make sure we never had any questions."

"Saved time travelling; convenient time meeting; not strung out more than once a week."(sic)

MEDFORD

"I much rather (sic) prefer the ITV course over the video tape telecourse lessons. ITV courses give a commitment because you have to attend class to see the lesson. Telecourses often can be passed over because the students can finish them anytime, but usually the student ends up trying to rush and finish them a week before the end of the semester."

"ITV is great. Without it I would not have been able to take this course. I am looking forward to taking Med. Terminology II via ITV. Perhaps other courses as well. Thank you for giving me this opportunity."

"Med Term I was very fulfilling mainly because _____ is an excellent instructor. She relates well to the students. Med Term II is not as exciting due to the instructor, _____. Any neg. (sic) feelings I have reflected in this survey are probably due to my opinion of the instructor. She's just not as "interactive" as _____ was. I'm still learning the material, but don't get too excited

about coming to class. This could happen in any type setting - not just ITV."

"Classes via TV in Medford saves much time in travel. You can interact with other students. Our facilitators have been very helpful, especially _____. I would appreciate many more classes via ITFS."

"I enjoyed the Medical Term class! I would not have taken the course if I had to go to Wausau."

"I enjoyed taking 2 classes this way - I wish more were offered, I feel I got just as much out of these type of classes as in room classes."

"Overall, I enjoyed the class, and learned most of what I anticipated the class would encompass. It is a way in which a lot of us working adults can continue our education without having to quit our jobs or take off time to travel to a campus."

"I enjoyed the ITV class so much last semester, our whole class decided to take another class together. We love it. It is a shame more classes aren't held like this. Assignments available. I'd like to see English related and a few more available. It makes getting the classes needed more available without all the stress of long driving and distance."

WAUSAU

"There seems to be very little input & participation from the distant class rooms. I was a student at the main class room studio, so I don't really know how it was for students at distant sites. I'm sure it is a time and travel expense savings."

"Really disliked the whole experience!! The entire thing was disorganized & inefficient. This particular instructor (Med Term) should be replaced & the class should be turned into a self-paced course. In no way was it worth 3 hours/week of my time!"

"It was my first ITV class and I found it interesting. But I was at Wausau, where the teacher was. But I think I would take a course again, even if I wasn't in the classroom with the teacher. A good way to accommodate more people."

Being in the classroom with the teacher is much different than being at the other site viewing the teacher & main site. I think being at the main site would be a better learning experience; I was at the main site."

"Don't waste so much time on attendance. Also, sometimes we'd have materials handed out that weren't always available for people at the other sites."

"There really wasn't that much difference, but I really liked the fact that the class was available for people in Antigo & Medford. It would've (sic) (sic) been a drag for them to drive."

"The teachers I had were very good. They were very well informed about the subjects they were teaching."

"The room seemed small & very crowded. The equipment should be all ready before the class starts - not half way through the class."

"It moved too slow. It took too long to take 'roll-call' and the instructor babbled on about unnecessary things."

"I think the ITFS is a very good opportunity for students not being close to school. For them, more courses through ITFS would be great - reaching more people, giving them more opportunities! Only the sound quality & small screen TV's (audio & visual) aspects of these courses should/could be improved."

"I didn't feel there was much of a difference from my standpoint since I was at the home base. I think at times it was the distant classrooms were at the disadvantage when occasional handouts weren't faxed or sent soon enough. I feel everything was handled adequately."

"A benefit of the course is the ability to have a higher enrollment during a semester (shorter waiting lists) and travel time."

"I filled this out the best I could. Some questions did not apply due to the fact that we had a teacher in the room."

"I really enjoyed Med Terms. _____ was an excellent instructor. Her lectures were super and she was an enjoyable person. I was out of school for 27 years & decided to return. I felt very comfortable in her class & felt I got a lot of info out of her class. At some other time I would like to take another one of her classes."

"I was very dissatisfied with the Med Term I course. Basically I feel it was a self study course & an instructor was not needed. Maybe just to begin the course (first two chapters that is). But in all actuality a lecture after every test was not needed & that seemed to be how everyone felt. Also some lectures (filmstrips) didn't pertain to the chapter we were to study next. Seemed like the instructor used anything to take up time. Also I didn't think it was fair if a test was missed you'd have to take what was called test B which was all fill in the blank & much harder than test A, the same test should be able to be taken, or one of equal severity."

"I was in the Wausau Medical Term. class with the teacher and we have students in other sites. I had no problem with this. I would take Med Term II even if I was at a different site. But last year I was at Medford site for American Institutions and it was very hard. It was hard to understand the discussions and be involved in the discussions. I would not take another class via satellite if your grade depends on class involvement."

"It was really convenient when the teacher wanted to show us a small picture in the book and it was easily enlarged through the TV."

"The Medford "class" never paid attention to the teacher, and they were always carrying on their own conversation."

"My own personal opinion is that I found the use of the microphone somewhat intimidating. The very nature of the use of equipment discourages impromptu cross-talk between the instructor and students and between students. I would not, however, say this is a sufficient reason for discontinuing ITV - it has many advantages which are necessary and helpful."

"I was able to relate with the other students at different locations. It was interesting to get to know them. The chairs in the ITV rooms were very comfortable. It was a good learning experience."

"It was pretty much the same as regular classes. The teacher was good, so that probably makes the difference."

"The teacher was good and I've learned alot (sic) (sic) from the class."

"I thought that taking attendance over the TV was a big waste of time - that would sometimes take 15 minutes. I think that Sue is a very good instructor and could do just as well without the TV-medical terminology shouldn't be taught over the TV-a lot of people feel uncomfortable talking in these microphones. Also, in this TV class-you had to jam study and couldn't learn everything. I think this class should be worth 3 days a week."

FOOTNOTES

¹Bruce Barker, Interactive Distance Learning Technologies for Rural and Small Schools: A Resource Guide. ERIC Mini-Review. (ERIC ED 286 698, 1987), p. 2.

²Wisconsin Educational Communications Board, p. 5, 1990

³Ibid., p. 6.

⁴Ibid.

⁵Ibid.

⁶NTC bulletin, Interactive Instructional Television System (ITV). November 28, 1989, p. 1.

⁷Ibid., p. 2.

⁸Michael Moore, "Learners and Learning at a Distance." in Evaluation of Teaching/Learning at a Distance. Report of the Annual Conference on Teaching at a Distance. Vol. 2: Informational Session Papers and Abstracts. (ERIC ED 307 850, 1987), p. 5.

⁹Norman Wagner, "The Operation and Evaluation of the Instructional Television System at Arizona State University." in Evaluation of Teaching/Learning at a Distance. Report of the Annual Conference on Teaching at a Distance. Vol. 2: Informational Session Papers and Abstracts. (ERIC ED 307 850, 1987), p. 116.

¹⁰Ibid.

¹¹Ibid.

¹²Marvin Platten and Bruce Barker, Texas Tech University's "Model of Teaching" Over Satellite: A Description and Evaluation of College Credit Coursework Delivered via the TI-IN Interactive Satellite Network. A Report Submitted to the Office of Academic Vice President. (ERIC ED 288 491, 1987), p. 1.

¹³Robert Fellenz, Constance Blackwood, and Alan Seamons, "Variables Affecting Adult Learning in a Distance Education Setting." in Evaluation of Teaching/Learning at a Distance. Report of the Annual Conference on Teaching at a Distance. Vol. 2: Informational Session Papers and Abstracts. (ERIC ED 307 850, 1987), p. 140.

¹⁴Ibid.

¹⁵Ibid.

¹⁶Diane Morehouse, Evaluating Interactive Television: Methods, Findings and Issues. Analysis Based on Evaluation of Minnesota's Technology Demonstration Program 1983-1987. (ERIC ED 309 013, 1987), p. 121.

¹⁷Larry Lienau, "Evaluation of Teaching/Learning at a Distance." in Evaluation of Teaching/Learning at a Distance. Report of the Annual Conference on Teaching at a Distance. Vol. 2: Informational Session Papers and Abstracts. (ERIC ED 307 850, 1987), p. 138.

¹⁸Ibid.

¹⁹Ibid.

²⁰Nadel, J., A Study of the Relationship Between Learner Preference and Student Achievement and Attitudes in an Instructional Television Course. (ERIC ED 301 170, 1988), p. 12.

²¹Jerry McClelland, "Adult Education and Vocational Education: Implications for Research on Distance Delivery." St. Paul: Minnesota Research and Development Center for Vocational Education, 1986, p. 16.

²²Alan Chute, Research on Teletraining: Student Acceptance, Learning Effectiveness and Cost Benefits in the Corporate Environment. (ERIC ED 267 760, 1986), p. 4.

²³John Marder, "Principles of Effective Video Teleconferencing - What to Do and What to Avoid." in Evaluation of Teaching/Learning at a Distance. Report of the Annual Conference on Teaching at a Distance. Vol. 2: Informational Session Papers and Abstracts. (ERIC ED 307 850, 1987), p. 67.

²⁴Ibid., p. 66.

²⁵Michael Moore, Op. Cit., p. 12.

²⁶Curtis D. Norenberg and Larry Lundblad, "Distance Delivery of Vocational Education Technologies and Planning Matrixes." St. Paul: Minnesota Research and Development Center for Vocational Education, (1987), p. 7.

²⁷Jerry McClelland, "Adult Education and Vocational Education: Implications for Research on Distance Delivery." St. Paul: Minnesota Research and Development Center for Vocational Center, 1986. p. 17.

²⁸Future Influences in Vocational Education, (1984). In Jerry McClelland, "Adult Education and Vocational Education: Implications for Research on Distance Delivery." St. Paul: Minnesota Research and Development Center for Vocational Center, 1986. p. 11.

²⁹Charles Feasley, (1985). In Curtis D. Norenberg and Larry Lundblad, "Distance Delivery of Vocational Education Technologies and Planning Matrixes." St. Paul: Minnesota Research and Development Center for Vocational Education, (1987), p. 10.

³⁰Jerry McClelland, Op. Cit., p. 11.

³¹Curtis D. Norenberg and Larry Lundblad, Op. Cit., p. 10.

³²Ibid.

³³James Zigerell, Distance Education: An Information Age Approach to Adult Education. Columbus: The National Center for Research in Vocational Education, 1984, p. 11.

³⁴Curtis D. Norenberg and Larry Lundblad, Op. Cit., p. 11.

³⁵Ibid.

³⁶Ibid., p. 12.

³⁷Ibid.

³⁸Ibid., p. 13.

³⁹Curtis D. Norenberg and Larry Lundblad, Op. Cit., p. 5.

⁴⁰Bruce Barker, Op. Cit., p. 2.

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